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Abstract of the Disclosure

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3 Apparatus and method to generate a stream of pulses having a pulse
4 repetition rate of at least about 50000 pulses per second and a per-pulse length of
5 less than one picosecond, and to scan and focus the stream to an output light pattern
6 suitable to sculpt tissue for a surgical procedure (e.g., ophthalmologic) using at least
7 a high number of pulses to complete the operation in a matter of a few second, e.g.,
8 100000 pulses in less than ten seconds. A laser having a optical fiber gain medium
9 generates a stream of femtosecond pulses. Some embodiments create a
10 preconditioning negative dispersion that compensates for positive dispersion in the
11 scanning system. In some embodiments, a lenticule is cut using the laser and
12 scanning system and is mechanically removed through a side slit formed through the
13 cornea surface.